US Army Corps of Engineers

Public Information Meeting
November 2005

FACT SHEET

Formerly Used Defense Sites
Environmental Studies at the

Fire Training Area

Former Advanced Twin Engine Flying School
Grandfield, Oklahoma

In 1980, Federal legislation established provisions for the U.S. Army Corps of Engineers (the Corps) to perform environmental restoration activities at properties formerly controlled or used by the U.S. Department of Defense (DoD). The Formerly Used Defense Sites (FUDS) program involves thousands of sites throughout the United States. While every site is unique, the Corps evaluates each site for the following:

- Containerized Hazardous, Toxic, and Radiological Waste
- Building Demolition and Debris Removal
- Ordnance and Explosive Debris
- Hazardous, Toxic, and Radiological Waste
- Potentially Responsible Party Investigations

The FUDS program only applies to DoD-generated pollution that occurred before the property was transferred to private owners, or to other federal, state, or local government owners.

The Corps has evaluated the Fire Training Area at the Former Advanced Twin Engine Flying School, which is now part of the Grandfield Municipal Airport (**Figure 1**). In this evaluation, the Corps has involved the City of Grandfield, the Grandfield Municipal Airport, the Oklahoma Department of Environmental Quality (ODEQ), and the public in the process.

Site History

The Army Air Corps purchased and developed the land that would become the Advanced Twin Engine Flying School in 1942. Prior to 1942 the site was primarily used for grazing and cattle operations. The Army Air Corps used the Advanced Twin Engine Flying School for flight training until the end of World War II. The site, including the Fire Training Area, was deeded to the City of Grandfield in 1947.

In 1979, a tornado destroyed most of the surface structures at the site; only a small storage building remained. The site is currently occupied by the Grandfield Municipal Airport and associated businesses.

The Fire Training Area operated for a total of approximately five years, during which time fire training exercises were carried out routinely. Fire training activities may also have occurred in the late 1960s to early 1970s. The Fire Training Area is still

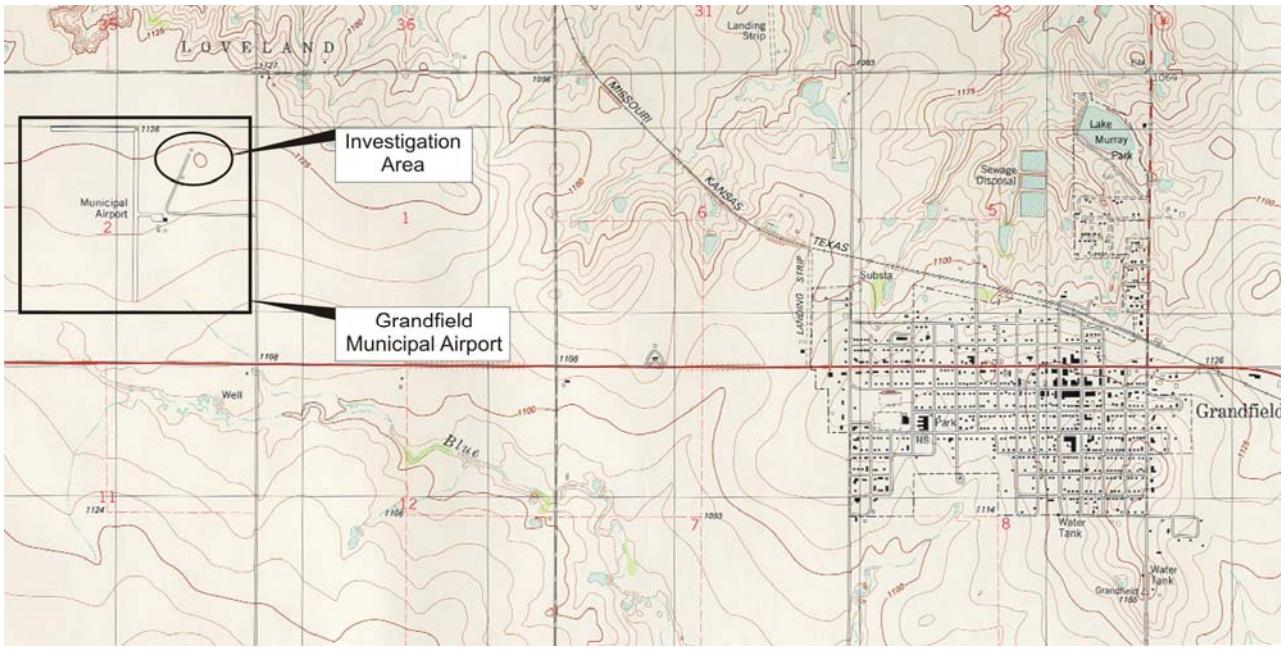

Figure 1: The investigation site is at the current Grandfield Municipal Airport, 2 miles east of Grandfield, Oklahoma.

visible as a low concrete berm approximately 60 feet in diameter. A small building is still present in the center of the former Fire Training Area that was used to store equipment associated with post-DoD use of a former skeet range at the site.

Site Investigations

The environmental investigations at the former Fire Training Area began with the Corps performing a site visit in 1991. During the visit, representatives from the Corps determined that the Fire Training Area (**Figure 2**) was the only potentially contaminated site associated with DoD activities at the former Advanced Twin Engine Flying School.

Subsequent activities at the Fire Training Area included a site inspection in 1996, a remedial investigation and feasibility study in 1999, a supplemental remedial investigation in 2000, and a human health and ecological risk assessment in 2005. The following are summaries of these studies.

Site Inspection (1996): The intent of the site inspection was to determine if fire training activities at the site may have resulted in the release of fuel or other contaminants into the environment. Surface and subsurface soil samples were collected during the inspection. The samples were analyzed for fuel compounds in the gasoline and diesel ranges, as well as selected metals, volatile organic compounds, and semivolatile organic compounds. Groundwater was not encountered during the investigation, so groundwater could not be obtained for analysis.

Figure 3: Soil boring drilling during the 1999 remedial investigation.

The concentrations of fuel-related compounds exceeded screening criteria in one of 7surface soil samples and in three of 23 subsurface soil samples. Screening criteria are conservative levels of contaminants in soil and groundwater, established by the state and/or federal government, below which contaminants are not considered to be a concern. Concentrations of contaminants above screening criteria require further study or corrective action.

Figure 2: Aerial photograph of the airport and investigation area.

The project team recommended additional investigation to determine the type and extent of contamination at the site.

Remedial Investigation and Feasibility Study (1999): The intent of the remedial investigation and feasibility study was to further identify the type and extent of contamination at the site. Field activities included installing a groundwater monitoring well and collecting surface soil, subsurface soil (**Figure 3**), and groundwater samples for laboratory analysis. All samples were analyzed for volatile organic compounds, semivolatile organic compounds, fuel compounds, and selected metals.

Arsenic and fuel compounds were identified as contaminants of potential concern in soil samples. The concentrations of arsenic exceeded screening criteria in 19 of the 52 soil

samples. The concentrations of fuel compounds exceeded screening criteria in 11 of the 52 soil samples. All soil samples acquired from the site ranged in depth from 8 to 15 feet below the ground.

The concentrations of barium and fuel compounds in the groundwater sample exceeded the screening criteria. Groundwater at the site is in an isolated area, and is not used for municipal, industrial, or agricultural purposes.

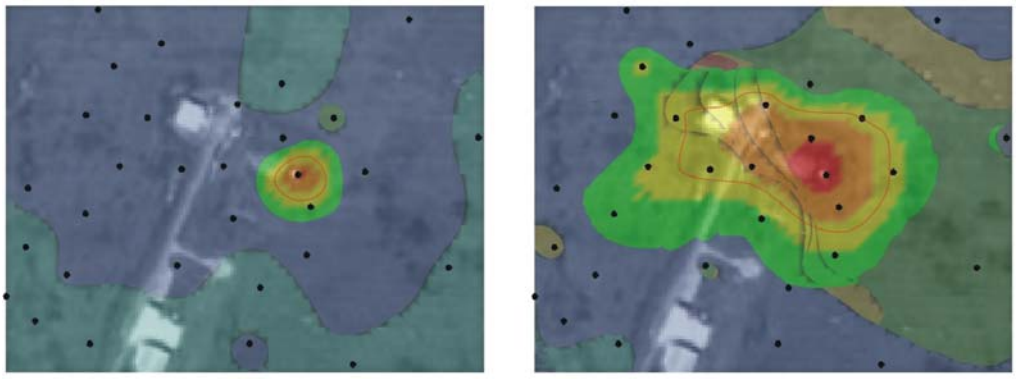

Figure 4: Distribution of fuel-related compounds at 5 feet below surface (right) and 10 feet below surface (left). [2000 Investigation].

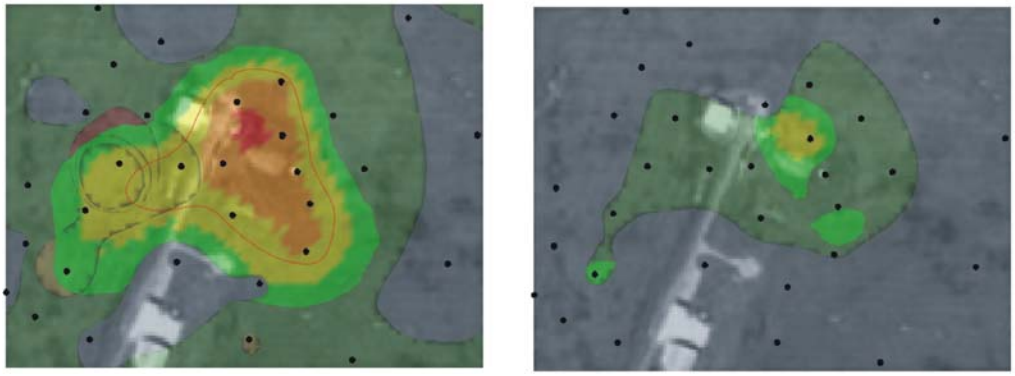

Figure 5: Distribution of fuel-related compounds at 15 feet below surface (right) and 20 feet below surface (left). [2000 Investigation].

Based on the remedial investigation and feasibility study results, the project team recommended additional soil and groundwater sampling to determine the extent of the contaminants of potential concern. Additional field work was also recommended to define the location of the sand and gravel deposit, which may act as a preferred pathway for the movement of contaminants.

Supplemental Remedial Investigation (2000): The intent of this study was to further evaluate the extent of contamination in soil and groundwater at the former Fire Training Area. Field activities included installing two temporary monitoring wells called piezometers and collecting soil and groundwater samples. Samples were analyzed for fuel compounds in the field. In addition, selected samples were sent to the laboratory for analysis of fuel compounds, volatile organic compounds, and selected metals.

Fuel compounds were identified as a contaminant of potential concern in soil samples. Detections of fuel compounds were generally limited to the sample intervals that were 9 to 10 and 14 to 15 feet below the ground (**Figures 4 and 5**). The fuel contamination extends approximately 325 feet to the north, east, and southeast and 625 feet to the west and southwest of the former Fire Training Area.

The metal arsenic was also identified as a contaminant of potential concern in soil samples. Arsenic was detected in all of the 15 soil samples submitted for laboratory analysis during the supplemental remedial investigation. However, none of the arsenic concentrations were above the level that occurs naturally at the site.

Barium and fuel compounds were identified as contaminants of potential concern in groundwater samples. However, groundwater at the site is limited to a small area. In addition, groundwater beneath the site is not currently used for municipal, industrial, or agricultural purposes.

Following this study, recommendations for future actions included:

- Determine the possible contribution of contaminants of potential concern from the existing underground storage tanks. (These

tanks are not included in the FUDS program because they were not owned or operated by the DoD).

- Determine if site contaminants pose a risk to human health or the environment.
- If risks to human health or the environment are identified and further action is required, conduct a feasibility study to determine the best approach.

Human Health and Ecological Risk Assessment (2005): The human health and ecological risk assessments were performed to determine what risk, if any, the contamination at the site poses to human health and the environment. Additional surface and subsurface soil samples were collected in three locations to complete the delineation of chemicals of potential concern.

The Human Health Risk Assessment (HHRA) concluded that no further evaluation is required as there is no potential for the public to be exposed to groundwater.

For the potential exposure to the surface and subsurface soil, the HHRA concluded that arsenic and benzo(a)pyrene were present at concentrations that are greater than the initial health-based screening criteria. Upon further evaluation, the project team determined benzo(a)pyrene was not a risk to potential receptors based on the location and concentration of the single sample detection.

Regarding potential exposure to surface and subsurface soil, the HHRA concluded that arsenic was present at concentrations that are greater than the initial health-based screening criteria. However, the distribution of the detections indicates that this is not due to previous DOD use of the site. Possibly, the use of chemicals containing arsenic after DOD ownership is the reason for its presence. The Corps is not authorized to address non-DoD initiated environmental impacts.

The Ecological Risk Assessment concluded that no further action is required to address ecological risk.

Future Actions

Based on the results of the risk assessment, it was concluded that no further action is required to address environmental impacts to the Fire Training Area associated with DoD activities. Further action to address arsenic in soil may be warranted. However, the locations where arsenic was detected in soil samples indicates that use of chemicals containing arsenic after DoD vacated the site may be the reason for the impact. USACE is not authorized to address non-DoD initiated environmental impacts.

Public Involvement

Public involvement is an important part of the FUDS program. Public involvement activities may include public information meetings, developing a mailing list, sending fact sheets and other information to members of the mailing list, and making technical documents available to the public. Copies of documents related to the former Fire Training Area project are available at the Grandfield Public Library, 101 West Second Street. This information repository will be updated as new information becomes available.

The public is encouraged to ask questions and make comments throughout the process; this input will become part of the public record. For more information about the former Fire Training Area, please contact:

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